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DESCRIPTIONS OF NEW VARIETIES OF NORTH AMERICAN  
LAND SHELLS.

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(1.) *Patula strigosa* Gld. var. *subcarinata*.

The shell in general form resembles a large coarse elevated or depressed Cooperi. It has six whorls, well rounded above and beneath, and subcarinated at the periphery. The body whorl has two revolving dark bands, one above and the other below the periphery; sometimes the upper band spreads over the shell to the suture forming a dark chestnut zone that fades out as it passes toward the apex. The lip is simple, thickened, its terminations joined by a callus; aperture obliquely subangulate; the suture is well impressed.

Height of the largest specimen 1 inch, breadth  $1\frac{1}{2}$  inch.

Height of the smallest specimen  $\frac{3}{4}$  inch, breadth 1 inch.

Habitat, Rathdrum, Idaho.

(2.) *Patula strigosa* Gld. var. *bicolor*.

This shell is a colored variety of the above.

It may be characterized as being of a general dark horn color mingled with dirty white; there are occasional zones of dark horn color above and fine dark lines beneath, but no defined bands. In some of the specimens the light color prevails, in others the horn color spreads over the shell in irregular patches.

Height  $\frac{7}{8}$  inch, breadth  $1\frac{1}{8}$  inch.

Habitat, Rathdrum, Idaho.

(3.) *Patula strigosa* Gld. var. *lactea*.

This is a beautiful clear milk-white shell, with  $5\frac{1}{2}$  whorls, subcarinated at the periphery. In the elevated forms the aperture is nearly circular, as broad as high; but in the depressed forms the aperture is broader than high, obliquely subangulate. The lip is simple, thickened, its terminations joined by a heavy callus,—the thickening of the lip and callus is a shade darker than the body of the shell.

Height of the largest specimen 1 inch, breadth  $1\frac{1}{8}$  inch.

Habitat, Rathdrum, Idaho.

The above varieties represent a colony of the largest specimens of the *Strigosa* group that I have collected. They are an important and very interesting addition to the series, and serve to confirm my previous views on the relationship of what I call the *Strigosa* group. This colony inhabits open places in the dense pine forests of the mountains, overgrown with deciduous bushes. They hibernate among leaves, brush and roots of trees and in protected and secure places, generally on the north slopes of the mountains.

(4.) *Patula strigosa* Gld. var. *jugalis*.

Shell umbilicated, depressed with numerous prominent oblique striae; spire very moderately elevated or depressed; whorls  $5\frac{1}{2}$  somewhat flattened above, but more convex beneath, the last falling in front, with two dark revolving bands, one at the periphery and the other above: the body whorl subcarinated at its beginning but more rounded as it approaches the aperture; suture well impressed; color ashy white with occasional horn colored stains; umbilicus large, pervious, showing the volutions; aperture oblique, ovate, but in very depressed specimens the aperture is at right angles with the axis of the shell: lip simple, thickened, its terminations approaching and joined by a thick heavy callus, making the lip in very adult specimens continuous.

Height of the largest specimens  $\frac{1}{2}$  inch, breadth 1 inch.

Height of the smallest specimens  $\frac{6}{16}$  inch, breadth  $\frac{1}{16}$  inch.

Habitat, Banks of Salmon River, Idaho.

This is another interesting form of the very variable *strigosa*. It inhabits stone piles, and other places where it can find shelter and protection against the fatal rays of the summer's sun, close along the banks of the river. It is interesting on account of its very depressed form and the ovate form of the aperture, the heavy callus, joining or "yoking" together the extremities of the lip.

(5.) *Patula strigosa* Gld. var. *intersum*.

Shell umbilicated, sublenticular, depressed, thin, dark horn color, more or less stained with darker chestnut. Whorls  $5\frac{1}{2}$  or 6, somewhat flattened above, more convex beneath, obtusely carinated at the periphery and bearing numerous coarse oblique rib-like striæ, and two dark revolving bands; suture well impressed; umbilicus large, pervious; aperture oblique, subangulated; lip simple, thickened, its terminations joined by a thick callus.

Height of the largest specimen  $\frac{1}{2}$  inch, breadth  $\frac{3}{4}$  inch.

Height of the smallest specimen  $\frac{5}{16}$  inch, breadth  $\frac{7}{16}$  inch.

Habitat. Bluffs along the banks of little Salmon River, Idaho.

REMARKS.—This shell inhabits stone piles at the foot of a steep bluff back some distance from the river. It seems to be quite rare as I found but few specimens during the two or three days of my stay in its vicinity, and many of them were dead. I regard it as one of the most interesting shells found by me during the season, for it combines the depressed angulated or keeled forms of the *Haydeni* side of the series, with the sculpturing of *Idahoensis*, two shells representing opposite characters in every respect. It thus becomes the companion of *Wahsatchensis*, a beautiful shell combining the same characters, but much more developed and connected with the large elevated forms. Var. *intersum* fills the opposite office by uniting these characters with the small depressed forms. Taken as a whole, this series of shells as now completed, seems to me to offer the best guide or key to the study of species that the student can have. Every known external character belonging to the genus *Helix*, is so gradually modified and blended with opposite characters, that if one had the molding or making of the many and various intermediate forms, he could scarcely make the series more complete than nature has done herself.

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NOTES ON SOME NORTHERN PUPIDAE WITH DESCRIPTION OF A  
NEW SPECIES.

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BY DR. V. STERKI.

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*Vertigo tridentata* Wolf.

Has a wide distribution in the northern part of the country; originally found in Illinois, it has been collected in different parts of